CLAIMS

1. A method of controlling layout of cell in an integrated circuit including datapath cells in a structured layout and other cells in an unstructured layout, comprising the steps of:

generating a description of a desired layout for the datapath cells;

transferring said description to a place and route tool to assign the desired layout to the datapath cells within the place and route tool;

assigning a status to the datapath cells to prevent movement of the cells;

transferring desired criteria regarding the other cells to the place and route tool; and

optimizing the layout based on said desired criteria, such that the datapaths cells are unmoved as different layout iterations are performed on the other cells.

2. The method of claim 1 and further comprising the step of inputting information on said datapath and other cells to the place and route tool.

3. The method of claim 1 wherein said step of generating a description comprises the step of generating one or more matrices for defining placement of said datapath cells.

4. The method of claim 3 wherein said step of generating one more matrices comprises the step of generating matrices having two or more matrices with interleaved rows.

5. The method of claim 3 wherein said step of generating one more matrices comprises the step of generating matrices having two or more matrices with interleaved columns.

6. The method of claim 3 wherein said step of generating matrices comprises the step of generating matrices leaving free space between slots for datapath cells in which ones of said other cells may be placed.

7. The method of claim 1 wherein said step of transferring desired criteria comprises the step of transferring timing criteria for the other cells to the place and route tool.

8. Apparatus for controlling layout of cell in an integrated circuit including datapath cells in a structured layout and other cells in an unstructured layout, comprising:

a place and route tool;

a datapath generator for generating a description of a desired layout for the datapath cells and transferring said description to a place and route tool to assign the desired layout to the datapath cells within the place and route tool;

wherein a status can be assigned to the datapath cells in said place and route tool to prevent movement of the cells during optimization of the layout of said other cells.

9. The apparatus of claim 8 wherein said place and route tool may receive information on said datapath and other cells.

10. The apparatus of claim 8 wherein said datapath generator generates a description of one or more matrices for defining placement of said datapath cells.

11. The apparatus of claim 10 wherein said datapath generator generates a description of two or more matrices with interleaved rows.

12. The apparatus of claim 10 wherein said datapath generator generates a description of two or more matrices with interleaved columns.

13. The apparatus of claim 10 wherein said datapath generator generates a description of a plurality of matrices for datapath cells leaving free space between slots of said matrices in which ones of said other cells may be placed.

14. The apparatus of claim 8 wherein said place and route tool may generate an optimized layout of said other cells based on desired constraints.

15. The apparatus of claim 14 wherein said desired constraints include timing constraints.